TriangleTube

prestige

Excellence

Indirect Water Heater

Part 2 of 2

***INSTALLATION AND MAINTENANCE* MANUAL**

⚠ WARNING

- **Before proceeding with installation and operation, read entire manual carefully. Failure to do so can cause injury or property damage.**

IMPORTANT

- **When receiving the PRESTIGE Excellence, any claims for damage or shortage in shipment must be filed immediately against the transportation company by the consignee.**
- **Warranty Registration Card must be filled out by the customer and mailed within thirty (30) days of installation in order to gain warranty coverage.**
- **Retain and affix this manual near the water heater for future reference**
- **Installation and service should only be performed by a qualified installer or service technician.**
- **Installations and service should be performed by a license plumber or gas fitter in the Commonwealth of Massachusetts.**

Product & Safety Information 1-2

Pre-Installation 3-4

Installation - Domestic Piping
- Temperature & Pressure (T&P) Relief Valve 5
- Drain Valve 6
- Automatic Air Vent 6
- Thermal Expansion 6
- Water Hammer 6
- Vacuum Breaker 6
- General Piping 6
- Domestic Piping 7
- Thermostatic Mixing Valve 7
- Recirculation Piping 7
- Storage Tank Applications 7

Installation - Piping Diagrams 9-10

Water Heater Start-Up
- Filling the Inner (Domestic Water) Tank 11
- Filling the Outer (Boiler Water) Tank 11
- Setting the Thermostat Mixing Valve 11
- General Notes 12
- Program Access of the MCBA 13
- Activating the Access Code 13-14
- DHW Storage Temperature Setting 15
- Setpoint Value Addition for DHW 15
- DHW ON Differential 15-16
- DHW OFF Differential 16-17
- Additional DHW Feature
  - Frost Protection 17
  - Troubleshooting 17
  - Factory Setting for Parameters 18

Water Heater Maintenance
- Maintenance Schedule 19
- Filling Water Heater 19
- Draining Water Heater 19-20
- Draining Inner (Domestic Water) Tank 20
- Draining Outer (Boiler Water) Tank 20

Replacement Parts 21
Water Heater Specifications
Excellence 22
Performance
Excellence 23

Definitions

The following terms are used throughout this manual to bring attention to the presence of potential hazards or important information concerning the product.

⚠ DANGER

Indicates the presence of a hazardous situation which, if ignored, will result in death, serious injury or substantial property damage.

⚠ WARNING

Indicates a potentially hazardous situation which, if ignored, can result in death, serious injury or substantial property damage.

⚠ CAUTION

Indicates a potentially hazardous situation which, if ignored, may result in minor injury or property damage.

NOTICE

Indicates special instructions on installation, operation or maintenance, which are important to equipment but not related to personal injury hazards.

BEST PRACTICE

Indicates recommendations made by Triangle Tube for the installers which will help to ensure optimum operation and longevity of the equipment

NOTICE

Triangle Tube reserves the right to modify the technical specifications and components of its products without prior notice.

⚠ WARNING

Bacteria can develop in the domestic water system if certain minimum water temperatures are not maintained.

⚠ DANGER

HOT WATER CAN SCALD!

Water temperature over 125ºF can cause severe burns instantly or death from scalds.

- Children, disabled and elderly are at highest risk of being scalded.
  - **Never leave them unattended in or near shower, bathtub or sink.**
  - **Never allow small children to use a hot water faucet or draw their own bath.**
- To avoid any potential scald hazard or if codes require specific water temperatures at the hot water faucet, the installer must:
  - Install the factory supplied thermostatic mixing valve at this appliance and ensure it is working property

    and
  - Set the domestic storage temperature to the lowest temperature which satisfies your hot water needs.
  - Feel and adjust water temperature before bathing or showering.
  - Water drained from the system drain valves may be extremely hot.

  TO AVOID INJURY:
  - Make sure all connections are tight.
  - Direct water flow away from any person.

⚠ CAUTION

Protection must be taken against excessive temperature and pressure!

TO PROTECT AGAINST EXCESSIVE TEMPERATURE AND PRESSURE

- Check if the Temperature & Pressure (T&P) relief valve is installed in the location provided (DHW Side).
- Check if the 30 psi relief valve supplied is installed in the location provided (CH Side)
- To avoid injury, install the relief devices to comply with local code requirements.

⚠ CAUTION

To prevent damage to the inner tank, the Installer must:

- **Always fill inner tank prior to outer tank and always drain outer tank prior to inner tank.**
- **Relieve primary system pressure below 15 psig prior to draining inner tank.**

Codes Compliance

Installation of the Excellence Water Heater must conform with the instructions in this manual and where applicable:

- local, state, provincial, and national codes, laws, regulations and ordinances.
- in Canada - CAN / CGA B149.1 or B149.2 Installation Code.

Excellence water heater is exempt from ASME Section VIII, Division 1 Code construction per Interpretation VIII-86-136. Check with local codes for applicability.

NOTICE

The Excellence water heater will absorb less than 200,000 BTU/hr when domestic water outlet temperature is 194ºF and boiler water supply temperature is 240ºF. Listed outputs are based on ASME Section VIII Interpretation VIII-1-86-136.

Where recommendations in this manual differ from local, or national codes, the local or national codes take precedence.

Codes Restrictions

Single wall heat exchanger in the Excellence water heater complies with National Standard Plumbing Code, provided that:

– boiler water (including additives) is practically non-toxic, having toxicity rating or class of 1, as listed in Clinical Toxicology of Commercial Products, and

– boiler water pressure is limited to maximum 30 psig by approved relief valve.

Single wall heat exchangers are permitted under the Uniform Plumbing Code - Paragraph L3.2. and L3.3 if they satisfy all of the following requirements.

1. The heat transfer medium is potable water or contains only substances which are recognized as safe by the U.S. Food and Drug Administration.
2. The pressure of the heat transfer medium is maintained less than the normal minimum operating pressure of the potable water system

   Exception: Steam complying with section #1 above.
3. The equipment is permanently labeled to indicate that only additives recognized as safe by the FDA shall be used in the heat transfer medium.

Other heat exchanger designs may be permitted where approved by the Administrative Authority.

Operating Restrictions

- Maximum DHW outlet temperature is 120ºF, when factory supplied mixing valve is installed.
- Maximum boiler water temperature is 194ºF.
- Maximum working pressure for inner (domestic water) tank is 150 psig.
- Maximum working pressure for outer (boiler water) tank is 30 psig.
- pH and chloride limits for water heaters are:

  - chloride, less than 150 mg/l
  - pH value min. 6 - max. 8

NOTICE

Any water conditioning system must be installed and maintained in accordance with manufacturer's specifications.

NOTICE

Do not install the Excellence water heater on any application if the boiler piping contains non-oxygen barrier tubing or if the boiler piping is considered an "open system". Exposing the outer tank of the Excellence water heater to oxygen contamination will lead to premature tank failure and denial of the warranty.

Locating Water Heater

- The Excellence is not intended for outdoor installations.
- Locate Excellence so that any leakage from the tank or water connections will not cause damage to the area adjoining the water heater or to lower floors in the structure.

Recommended Clearances

The Excellence is approved for zero clearance to combustibles, excluding vent and boiler piping.

- Vent & Boiler Piping - 1/4 inch from combustible materials.

BEST PRACTICE

To provide serviceability to the unit it is recommended that the following clearances be maintained:

Top boiler jacket - 24 inches.

Front - 24 inches.

Bottom boiler piping - 24 inches.

Rear - 0 inches

Sides - 6 inches

NOTICE

When maintaining zero clearance or less than recommended clearances, some product labeling may become hidden and unreadable

⚠ WARNING

When installing the Excellence in a confined space, sufficient air must be provided for proper combustion and venting and to allow, under normal operating conditions, proper air flow around the product to maintain ambient temperatures within safe limits to comply with the National Fuel Gas Code NFPA 54 - latest edition. Reference the Excellence Boiler Manual for additional guidelines.

Residential Garage Installations

When installing the Excellence in a residential garage, the following special precautions per NFPA 54/ANSI Z223.1 must be taken:

- Mount the unit with a minimum 18 inches above the floor level of the garage. Ensure the burner and ignition devices / controls are no less than 18 inches above the floor level.
- Locate or protect the unit in a matter so it cannot be damaged by a moving vehicle.

Temperature & Pressure (T&P) Relief Valve

⚠ CAUTION

To reduce risk of excessive pressures and temperatures in the water heater, install temperature and pressure protective equipment required by local codes, but no less than a combination temperature and pressure relief valve certified by a nationally recognized testing laboratory that maintains periodic inspection of production of listed equipment or materials, as meeting the requirements for Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems, ANSI Z21.22. This valve must be marked with a maximum working pressure of the water heater.

- The Excellence water heater must be protected with a T&P relief valve.
- Size the Excellence T&P relief valve by the following specifications, unless they conflict with local codes: 3/4" NPT with an AGA Rating of 100,000 BTU/hr (Watts 100XL-8 or equivalent).

NOTICE

For proper operation of the T&P and to prevent the T&P from activating due to boiler water temperature, use a T&P relief valve with extended element. A 8" minimum length is recommended.

Standard Installation

- Install T&P relief valve in the **Auxiliary** connection located behind the air vent on the top of the water heater as shown Fig. 2 page 8.

Commonwealth of Massachusetts Installation

Follow this procedure for jurisdictions requiring a vacuum breaker to be installed on the domestic cold water inlet.

- Install the T&P in the run (straight through leg) of a tee located at the domestic hot water outlet. Use a long element T&P relief valve, as shown in Fig. 3 page 8.

T&P Relief Valve Discharge Piping

T&P relief valve discharge piping must be:

- made of material serviceable for temperatures of 250ºF or greater.
- directed so that hot water flows away from all persons.
- directed to a suitable place for disposal.
- installed so as to allow complete draining of the T&P relief valve and discharge line.

T&P relief valve discharge piping **must not** be:

- excessively long. Using more than 2 elbows or 15 feet of piping can reduce discharge capacity.
- directly connected to a drain. Terminate discharge piping within 6" from drain. Refer to local codes.
- plugged, reduced or restricted.
- subject to freezing.

⚠ WARNING

Do not install any valve between T&P relief valve and tank connection or on T&P relief valve discharge piping. Do not plug T&P relief valve or discharge piping. Improper placement and piping of T&P relief valve can cause severe personal injury, death or substantial property damage.

Drain Valve

Drain valve and fittings are supplied by others.

Standard Installation

- Install a tee connection at the domestic cold water inlet, as shown in Fig. 4, pages 9.
- Pipe the drain piping with drain valve from the tee connection to:
  - a suitable place for disposal

  or
  - terminate within 12" of the floor

Commonwealth of Massachusetts Installation

- Thread a 3/4" close nipple onto the Auxiliary connection and insert an open-end dip tube into the Auxiliary connection on top of water heater. As shown in Fig. 3, page 8.
- Install a 3/4" NPT elbow to the Auxiliary connection.
- Pipe the drain piping with drain valve from the elbow connection to:
  - a suitable place for disposal

  or
  - terminate within 12" of the floor

Automatic Air Vent

1. Install automatic air vent provided using suitable pipe dope or tape in the air vent connection as shown in Fig. 2 and 3 page 8.
2. Unscrew vent cap on air vent one full turn. Leave cap unscrewed one turn for normal venting.

Thermal Expansion

If a backflow preventer, check valve or pressure reducing valve is piped on cold water supply piping of water heater, install an expansion tank on cold water supply line to prevent normal thermal expansion from repeatedly forcing open T&P relief valve.

⚠ CAUTION

T&P relief valve is not intended for constant duty, such as relief of pressure due to repeated normal system expansion. Correct this condition by installing a properly sized expansion tank in domestic water system. Refer to expansion tank manufacturer's installation instructions for proper sizing.

Water Hammer

Dishwashers, clothes washers and fast-closing positive shut-off valves incorporated in the system all contribute to creating water shock. Install a water hammer arrester to prevent damage to pipes and appliances. See device manufacturer's instructions for application and installation.

NOTICE

Water hammering within the domestic piping system can cause premature failure of the inner tank of the water heater. This type of failure is *NOT* covered under warranty.

Vacuum Breaker

Installing a vacuum breaker on the domestic cold water outlet will prevent damage to the inner tank if a negative pressure is developed in the domestic supply line. See manufacturer's instructions for application and installation of the vacuum breaker.

General Piping

- For domestic water piping diagrams, see pages 9 and 10.
- All plumbing must meet or exceed all local, state and national plumbing codes.
- Use pipe dope or tape suitable for potable water systems.
- Use isolation valves to isolate system components.

Domestic Piping

- Union on domestic hot water outlet should be piped at a higher elevation than domestic water drain valve. This will make draining the water heater easier.
- Use dielectric unions or couplings to protect hot and cold water fittings from corrosion when connecting dissimilar materials such as copper and galvanized iron pipe.
- If copper pipe is used for domestic water connections, first solder pipe to a threaded adapter and then screw adapter into cold water inlet on top of Excellence. Cold Water Inlet contains an internal plastic dip tube which can be damaged by heat from soldering.

NOTICE

Do not apply heat to the cold water inlet when making sweat connections to water heater. Sweat tubing to adapter before fitting adapter to cold water inlet of heater. It is imperative that no heat be applied to the cold water inlet, as it contains a non metallic dip tube.

- When the water supply pressure is higher than 70 psig, it is recommended to install a pressure reducing valve on cold water supply line to prevent water loss through T&P relief valve.

Thermostatic Mixing Valve

The Excellence is factory supplied with a thermostatic mixing valve with built-in check valve. The mixing valve must be installed as shown in Fig. 1.

The operating range of the thermostatic mixing is 90ºF to 120ºF.

For applications with a domestic recirculation loop, the recirculation pump should be controlled by an aquastat. The maximum recommended setting of the aquastat is 10ºF lower than the thermostatic mixing valve setting.

⚠ DANGER

For proper operation of the thermostatic mixing valve and to prevent potential scalding hazards, the recirculation loop should be controlled by an aquastat. DO NOT use continuous recirculation.

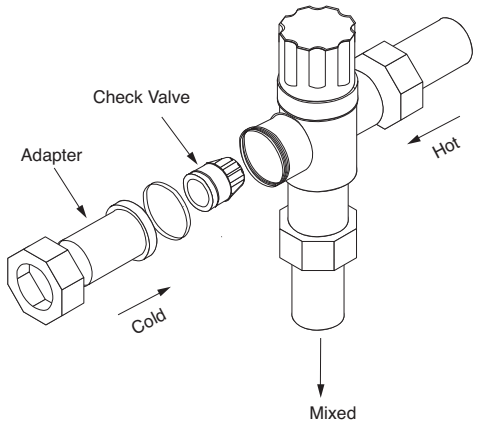


Fig. 1: Mixing Valve Assembly

Recirculation Piping

- Recirculation piping must be installed in the cold water inlet as shown Fig. 5, page 9.
- A stainless steel or bronze circulator is recommended.

Storage Tank Application

For applications requiring large volumes of domestic hot water in a relative short period, the installer may include a storage type tank (see Fig. 6 page 10) in the domestic piping.

The installer must:

1. Relocate the thermostatic mixing valve from the Excellence to the outlet of the storage tank.
2. Provide recirculation from the storage tank back to the Excellence using a bronze type circulator. Maximum recommended recirculation flow rate is 1 gpm.

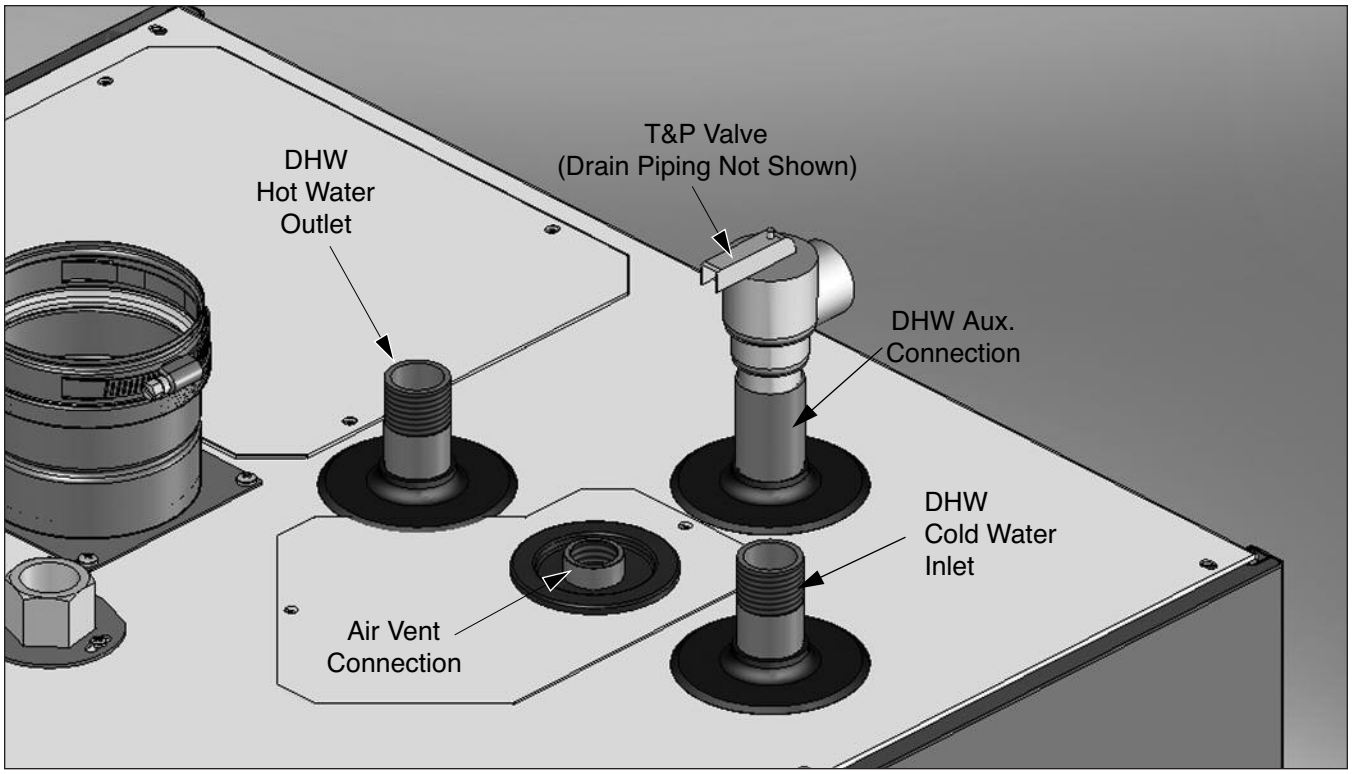


Fig. 2: Standard Installation of the T&P Relief Valve

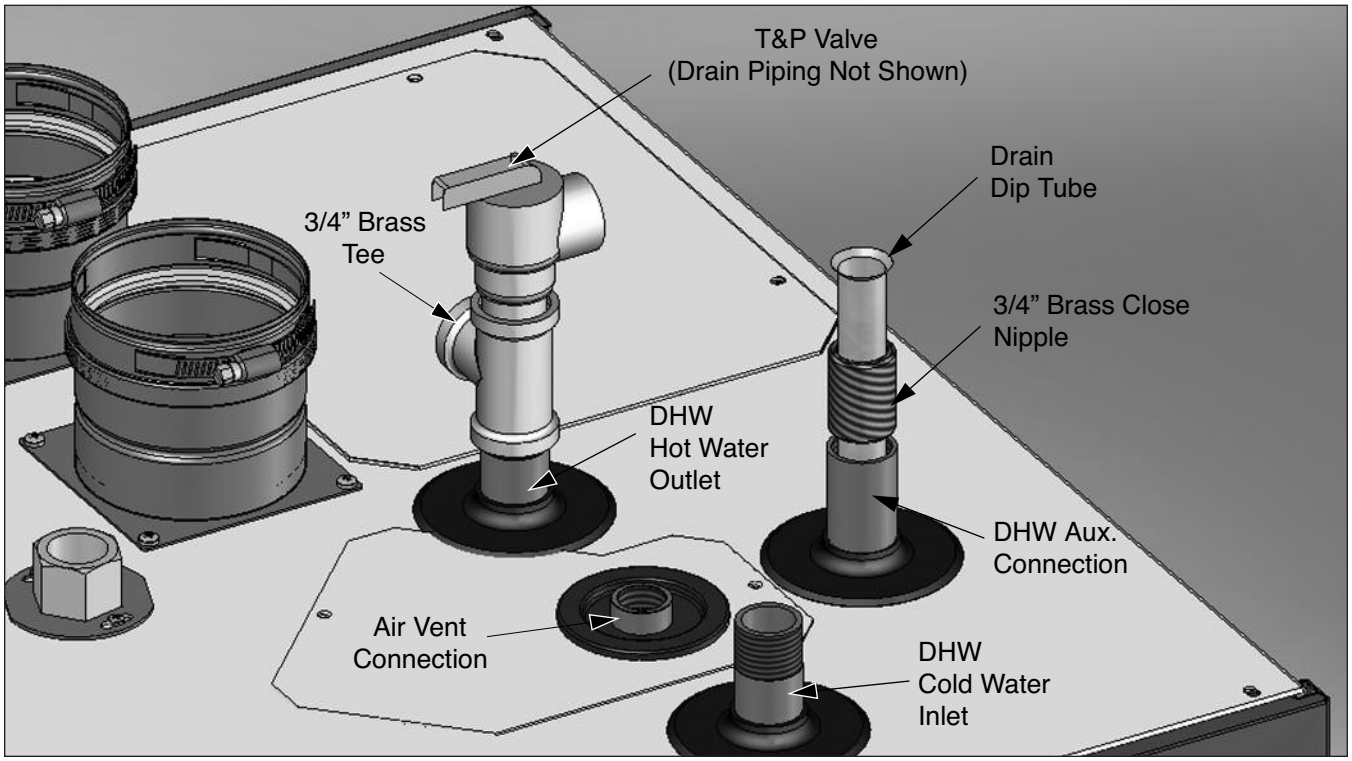


Fig. 3: Commonwealth of Massachusetts Installation

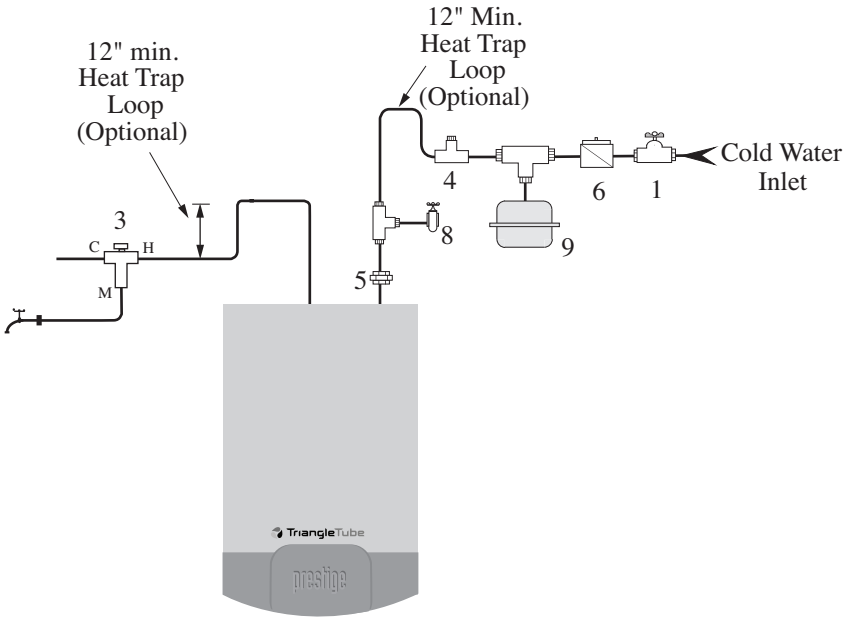


Fig. 4: Standard Installation Domestic Piping Excellence Series

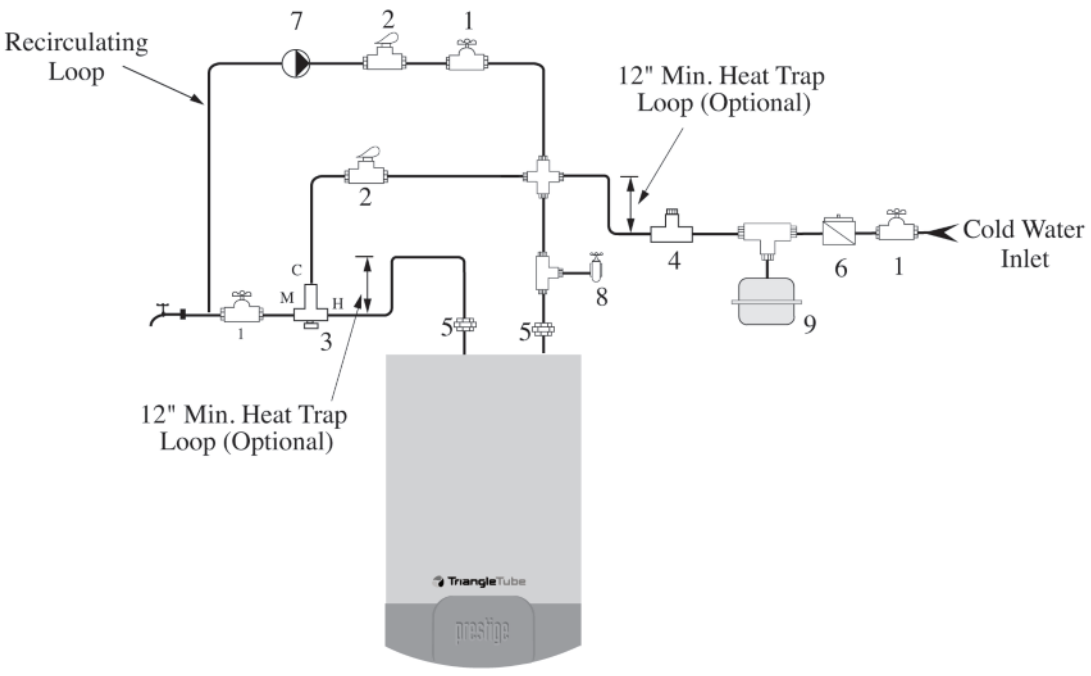


Fig. 5: Standard Installation Domestic Piping with Optional Recirculation Excellence Series

1. Shut-off valve
2. Flow check valve
3. Mixing valve with check valve
4. Vacuum Breaker *
5. Unions
6. Backflow preventer or pressure reducing valve(*)
7. Circulator (controlled by aquastat)
8 Domestic drain valve
9. Thermal expansion tank (potable)

(*) Optional devices may be required by local codes.

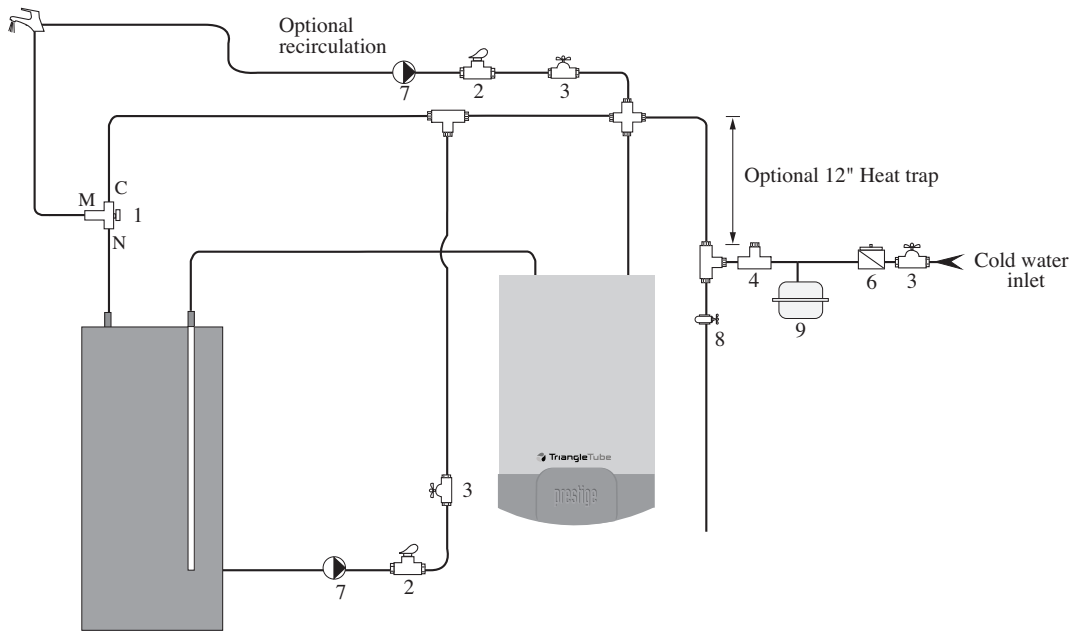


Fig. 6: Domestic Piping with Optional Storage Tank

1. Mixing valve with check valve
2. Flow check valve
3. Shut-off valve
4. Backflow preventer or pressure reducing valve(*)
6. Thermal expansion tank
7. Circulator (controlled by aquastat)
8 Domestic drain valve
9. Vacuum Breaker *

(*) Optional devices may be required by local codes.

Filling the Inner (Domestic Water) Tank

⚠ CAUTION

- **Never use the Excellence unless inner and outer tank of the water heater is completely filled with water.**
- **Inner tank of the Excellence water heater must be completely filled and pressurized before pressurizing outer tank.**

1. Close domestic water drain valve.
2. Open domestic water isolation valves on the water heater piping.
3. Vent air from inner (domestic water) tank by opening nearest hot water faucet. Fill domestic water tank completely by allowing water to run until there is a constant flow of water.
4. Close hot water faucet.

Filling the Outer (Boiler Water) Tank

⚠ CAUTION

- **Never use the Excellence unless inner and outer tank of the water heater is completely filled with water.**
- **Inner tank of the Excellence water heater must be completely filled and pressurized before pressurizing outer tank.**

NOTICE

Reference the PRESTIGE Excellence boiler manual for boiler start-up and guidelines for filling the boiler.

If antifreeze is used in boiler water, check concentration. Boiler water (including additives) must be practically non-toxic, having toxicity rating or class of 1, as listed in Clinical Toxicology of Commercial Products.

⚠ WARNING

Do not use automotive, ethylene glycol or petroleum-based antifreeze. Do not use any undiluted antifreeze. This can cause severe personal injury, death or substantial property damage.

Setting the Thermostatic Mixing Valve

NOTICE

The thermostatic mixing valve controls the outlet hot water temperature delivered to the faucets.

⚠ WARNING

POTENTIAL SCALD HAZARD. The mixing valve must be installed on the Excellence. Removal of the mixing valve will create a potential scald hazard resulting in severe personal injury or death.

If any adjustment needs to be made on the valve:

- Use a L-Key to remove the set screw securing the knob to the valve.
- Remove the knob and lock ring from the valve.
- Replace the knob and adjust the set temperature of the valve to the desired temperature.

NOTICE

To calibrate the outlet temperature, allow the water to run for approximately 2 minutes and measure the water with a thermometer. To adjust the valve setting, rotate the knob clockwise to decrease the water temperature or counter-clockwise to increase the water temperature.

- Once the desired temperature is achieved, remove the knob and refit the lock ring onto the valve's "Mix" marking.
- Locate the tab on the inner face of the knob into the retainer in the locking ring. Secure the knob with set screw.

DANGER

HOT WATER CAN SCALD!

- Water temperatures over 125ºF can cause severe burns instantly, or death from scalds.
- Feel water before bathing or showering.
- Consumer Product Safety Commission and some states recommend temperatures settings of 130ºF or less. Setting thermostat higher than 130ºF will increase risk of scald injury and cause severe personal injury or death.
- Water heated to a temperature suitable for clothes washing, dish washing and other sanitizing needs will scald and cause permanent injury.
- Children and elderly, infirm, or physically handicapped persons are more likely to be injured by hot water. Never leave them unattended in or near a bathtub. If anyone using hot water in the building fits this description, or if state laws or local codes require certain water temperatures at hot water faucets, take special precautions.
  - Install the factory supplied automatic mixing valve at water heater and/or install a point of use mixing valve at each hot water faucet, bath and shower outlet. Selection and installation of point of use mixing valves must comply with valve manufacturer's recommendation and instructions.
  - Use the lowest practical temperature setting.
  - Check water temperature after any adjustment of the mixing valve.

General Notes

- Household water usage patterns will affect water temperature at any faucet or shower. Occasionally check temperature at each point of use, then adjust the mixing valve setting accordingly. Always recheck temperature after adjusting the mixing valve.
- Lowering the automatic mixing valve as indicated in these instructions will reduce water temperature levels. Consult your installer or service technician.

Important Information - Read Before Proceeding

⚠ WARNING

This document is intended to be used by a factory trained and qualified heating contractor or service technician only. Read all instructions within this document and within the PRESTIGE Excellence Boiler Installation and Maintenance Manual, before proceeding. It is recommended to follow the procedures in the steps given, skipping or missing procedural steps could result in severe personal injury, death or substantial property damage.

Program Access of the MCBA CONTROL

To adjust the factory parameter setting of the Prestige MCBA Control, the installer must enter into the Parameter menu of the control.

⚠ WARNING

Do not attempt to revise any other control parameter setting except those listed in this supplement. Perform only those parameter revisions described in this supplement. Failure to comply could result in erratic or unreliable operation of the Prestige resulting in severe personal injury, death or substantial property damage.

NOTICE

For additional information on revising the Prestige MCBA Control Module operational parameter settings, reference the Prestige Control Supplement.

Activating the Access Code

To enter the parameter listing of the MCBA control, the installer must enter the service code as follows:

1. Press and hold the MODE button
2. Continue holding the MODE and press STEP button until STBY appears and hold both STEP and MODE buttons for 2 to 3 seconds.

   The display should read CODE
3. Release the STEP and MODE buttons on the control panel.
4. Press STEP once.

   The display should read C_XX (XX should be a random number from 00 to 99)
5. Press the + or - button to change the display number C_XX to read C_54. Press and release the + or - to change the display one number at a time. Press and hold the + or - to rapidly change the display number.
6. When the display reads C_54 press STORE to save the service code. The display C_54 should flash when the code is entered and saved.

After the service code is entered press the MODE button until the display shows PARA. At this point the installer can access the parameters required for application.

Once in the parameter mode, press the STEP repeatedly to reach the appropriate parameter setting. The display should show the following sequence, as the STEP button is press repeatedly:

Press STEP once- 1148
Press STEP x2 - 2_01
Press STEP x3 - 3_01
Press STEP x4 - 4186

Press STEP x5 - P_18

Press STEP x6 - P_11

Etc.....

After Parameter 4 the display will show P followed by a two-digit number that increases with each press of the STEP button.

NOTICE

The actual parameter values displayed on the unit may vary depending on the application. The parameter sequence will always occur in the order shown.

Once a particular parameter is reached, release the STEP button. Wait a second and the display will show the current setting for that parameter in the right two display digits.

To Change a Parameter Setting

Use the + or - button to change the value of the display.

Press the STORE button once to save the change.

⚠ WARNING

If a parameter setting is changed from the factory default and the STORE button is not pressed to save the setting, the MCBA module will automatically store the setting after 15 minutes. Ensure all parameters settings are either factory default or revised based on the application. Review all parameters settings on page 18 when completed and prior to commission of the boiler. Failure to comply could result in erratic or unreliable operation of the Prestige boiler.

NOTICE

Once a parameter setting value has been revised and stored, if the STEP button is pressed for the next parameter setting the value setting of that parameter will appear. The display will not show P_XX of the next sequential parameter. The sequence of parameters may be scrolled through, as the display will roll over from parameter 46 to parameter 1.

BEST PRACTICE

If sequential parameters are being revised and since the display will not show P_XX of the sequential parameter, it is recommended to press and hold the STEP button to scroll through the entire list of parameters before making any additional changes to avoid any potential confusion.

DHW Storage Temperature Setting

The parameter setting for the DHW storage temperature is Parameter 1 and is accessible without having to enter the service code.

To revise the parameter setting within the Prestige Control Module for the set point of the Domestic Storage temperature, the installer can access the parameter setting by entering the Parameter Mode PARA during normal operation, the service code is not required.

Parameter	Factory Setting	Minimum Setting	Maximum Setting
1	140ºF	68ºF	150ºF

1. Press MODE once until the display shows PARA.
2. Press STEP until the display shows 1140 or 1XXX (where XXX is a setting other than the factory setting).
3. Press the + or - button until the desired DHW storage temperature setting is achieved. Press STORE to save the setting. The display will flash when the revised setting is accepted.

Setpoint Value Addition for DHW

To achieve the boiler operating temperature during a DHW request for heat, the MCBA Control uses Parameter 1 and a second parameter, Parameter 21 Setpoint Value Addition for DHW. Parameter 1 plus Parameter 21 will establish the boiler operating temperature limit.

If Parameter 1 is set below 134ºF, it is recommended that Parameter 21 be reset to a higher setting. The request for DHW is based on the temperature reading of the DHW sensor and its relationship to Parameter 1. The operating boiler temperature setpoint is based on Parameter 1 plus Parameter 21 with a maximum operating temperature of 194ºF.

To revise the parameter setting within the Prestige Control Module for the Setpoint Value Addition for DHW, the installer must activate the service code for the control module as previously described in the Program Access of the MCBA section.

1. Enter into the service code mode.
2. Once the service code has been entered and accepted, press MODE until the display shows PARA.
3. Press STEP until the display shows P_21. This parameter setting is the Setpoint Value Addition for DHW parameter. After releasing the STEP button the display will show the current setting.

Parameter	Factory Setting	Minimum Setting	Maximum Setting
21	46ºF	00ºF	54ºF

4. Press the + or - button until the desired setting is achieved. Press STORE to save the setting. The display will flash when the revised setting is accepted.
5. Once the desired parameter setting has been revised and stored within the Prestige Control module, press RESET to exit the CODE mode.

DHW ON Differential

The MCBA Control Module has 2 differential settings for the burner operation. The first differential setting the installer has the option of adjusting, is Parameter 38 DHW ON Differential. This parameter sets the DHW storage temperature low limit. The burner operation will respond when the DHW storage temperature drops below Parameter 1 minus Parameter 38 setting.

A minimum DHW ON Differential parameter setting will create a quicker burner operation response to any domestic water draws from the Excellence tank. In contrast, a maximum DHW ON Differential setting will result in a delay response to domestic draws.

DANGER

The DHW ON Differential setting of Parameter 38 greatly affects the production of domestic hot water. A minimum setting of Parameter 38 could result in a rapid response to a DHW request for heat resulting in a potential scald hazard. It is strongly recommended that the installer utilize the factory supplied thermostatic mixing valve on the DHW outlet of the Excellence. Failure to comply could result in severe personal injury, death or substantial property damage.

To revise the parameter setting within the Prestige Control Module for DHW ON Differential control, the installer must activate the service code for the control module as previously described in the Program Access of the MCBA section.

1. Enter into the service code mode.
2. Once the access code has been entered and accepted, press MODE until the display shows PARA.
3. Press STEP until the display shows P_38.. This parameter setting is the DHW ON Differential parameter. After releasing the STEP button the display will show the current setting.

Parameter	Factory Setting	Minimum Setting	Maximum Setting
38	02°F	(-)6°F	54°F

4. Press the + or - button until the desired setting is achieved. Press STORE to save the setting. The display will flash when the revised setting is accepted.
5. Once the desired parameter setting has been revised and stored within the Prestige Control module, press RESET to exit the CODE mode.

DHW OFF Differential

The second differential setting is Parameter 39 DHW OFF Differential. This parameter sets the DHW storage temperature high limit. The burner operation will cease when the DHW storage temperature rises above Parameter 1 plus Parameter 39.

A maximum DHW OFF Differential parameter setting will result in an extended burner firing cycle when responding to any domestic water draws from the Excellence. This extended burner firing cycle could result in a final storage temperature of the domestic hot water that is higher than the desired storage temperature setting.

DANGER

The DHW OFF Differential setting of Parameter 39 greatly affects the production of domestic hot water. A maximum setting of Parameter 39 could result in an excessive domestic storage temperature resulting in a potential scald hazard. It is strongly recommended that the installer utilize the factory supplied thermostatic mixing valve on the hot water outlet of the Excellence. Failure to comply could result in severe personal injury, death or substantial property damage.

To revise the parameter setting within the Prestige Control Module for DHW OFF Differential control, the installer must activate the service code for the control module as previously described in the Program Access of the MCBA section.

1. Enter into the service code mode.
2. Once the access code has been entered and accepted, press MODE until the display shows PARA.
3. Press STEP until the display shows P_39. This parameter setting is the DHW OFF Differential parameter. After releasing the STEP button the display will show the current setting.

Parameter	Factory Setting	Minimum Setting	Maximum Setting
39	06ºF	(-)36ºF	54ºF

4. Press the + or - button until the desired setting is achieved. Press STORE to save the setting. The display will flash when the revised setting is accepted.
5. Once the desired parameter setting has been revised and stored within the Prestige Control module, press RESET to exit the CODE mode.

Additional DHW Features

Frost Protection

Through the use of the IDWH sensor, the Prestige Excellence Control module will now provide a Frost Protection feature to the water heater.

The Frost Protection feature is designed to protect the Excellence water heater from a potential freeze up. The protection is activated once the IDWH sensor records a domestic temperature below 38ºF. At that time the Prestige Excellence will begin the burner function at low input, the circulator will begin circulating and the internal 3-way valve will open. The burner will continue operating at minimum input with circulator energized until the sensor senses a domestic water temperature above 50ºF. At that point the boiler will shut down the burner function and circulator. This feature is always active even if the DHW operation is in the OFF mode and cannot be overridden.

Troubleshooting

Error Codes

b_38 alternating with a status code of 9

The IDWH Sensor is not properly connected to the Prestige low voltage terminal strip. Check for proper connections and proper terminals

b_33 alternating with a status code of 9

The IDWH Sensor is short-circuited. Check for proper connections to the Prestige low voltage terminals.

Once the condition is corrected, the errors will automatically reset and the Prestige Excellence will return to normal operation.

FACTORY SETTING FOR PARAMETERS

1	140ºF	DHW Setting
2	01	DHW Application Selection
3	01	CH Application Selection
4	186ºF	CH Maximum Boiler Operating Setpoint
10	86ºF	CH Minimum Boiler Operating Setpoint
11	00ºF	CH Reset Curve Coldest Day
12	64ºF	CH Reset Curve Warmest Day
13	-22ºF	Frost Protection Setpoint
15	122ºF	2nd Circuit Maximum Operating Setpoint
16	68ºF	2nd Circuit Minimum Operating Setpoint
17	10ºF	2nd Circuit "ON" Differential
18	32ºF	CH Block Temperature Setting
19	00 Minutes	Boost Feature Setting
20	00ºF	Parallel Shift Value
21	46ºF	Setpoint Value Addition for DHW
32	01 Minutes	CH Circulator Post Pump Time Period
33	03 x 10.2 Sec.	DHW Circulator Post Pump Time Period
38	02ºF	DHW "ON" Differential
39	06ºF	DHW "OFF" Differential
40	03 x 10.2 Sec.	CH Call Blocking Time
41	00 x 10.2 Sec.	DHW Call Blocking Time
42	00 x 10.2 Sec.	DHW to CH Call Blocking Time Setting
43	0 Minutes	DHW Priority Timeout
45	00	CH Operating Signal Selection
46	02	DHW Operation Signal Selection

Maintenance Schedule

Annual service by qualified service technician should include the following:

- ☐ Any procedure required by local codes.
- ☐ Check air vent operation.
- ☐ Verify system pressure. Air venting procedure may require adding water to bring system up to pressure, typically 12 psig.
- ☐ Manually operate T&P relief valve at least once a year. This will release some hot water.

⚠ WARNING

Before operating T&P relief valve, make sure no one is in front of or around T&P relief valve discharge piping. Hot discharge water can cause severe personal injury or substantial property damage.

- ☐ Move operating lever to open position for a few seconds and then move it back, allowing it to snap closed. After T&P relief valve is operated, if it continues to release water, close cold water inlet to water heater immediately. Follow draining instructions, and replace T&P relief valve. If T&P relief valve weeps periodically, it may be due to thermal expansion see Thermal Expansion, page 6. Do not plug T&P relief valve or discharge piping.

⚠ WARNING

Plugging T&P relief valve or discharge piping can cause excessive pressure in water heater, resulting in severe personal injury, death, or substantial property damage.

- ☐ Follow instructions on circulator to oil it, if required.
- ☐ Check mixing valve, valves, pipes and fittings for leaks.
- ☐ Check function of field-installed controls and valves. See component manufacturer's instructions.
- ☐ Review homeowner's maintenance responsibilities and their frequencies, including any not listed in the following section.

Homeowner monthly maintenance to include:

- ☐ Check air vent operation.
  - Automatic air vent - remove cap. Briefly push in valve and release it to clean valve seat. Screw cap on completely, then unscrew one full turn. If air vent does not operate, call qualified service technician.
- ☐ Visually check valves, pipes and fittings for leaks. Call qualified service technician to repair leaks.

Filling Water Heater

See "Filling the Outer (Boiler Water) Tank" and "Filling the Inner (Domestic Water) Tank on page 11.

Draining Water Heater

Drain water heater if it will be shut off and exposed to freezing temperatures. Freezing water will expand and damage water heater.

- If boiler water contains sufficient antifreeze, then only the domestic water needs to be drained.

⚠ WARNING

Close boiler water isolation valves and relieve system pressure to below 15 psig in outer tank before draining inner tank to prevent damage to inner tank.

- If boiler water does not contain sufficient antifreeze, then the boiler water and domestic water must be drained.

If antifreeze is used in boiler water, check concentration. Boiler water (including additives) must be practically non-toxic, having toxicity rating or class of 1, as listed in Clinical Toxicology of Commercial Products. A maximum 50/50 mixture of inhibited propylene glycol is recommended. Follow antifreeze manufacturer's instruction.

⚠ WARNING

Do not use automotive, ethylene glycol or petroleum-based antifreeze. Do not use any undiluted antifreeze. This can cause severe personal injury, death or substantial property damage.

⚠ WARNING

Water from opened drain valves, unions and other connections may be extremely hot. To avoid severe personal injury, death or substantial property damage:

- **Tighten all drain hose connections.**
- **Direct hot water away from all persons.**

Draining Outer (Boiler Water) Tank

1. Disconnect power supply to water heater.
2. Close boiler water isolation valves between boiler and water heater.
3. Connect hose to boiler water drain valve at water heater. Open and drain water to a safe place.
4. To speed draining procedure, loosen air vent on top of tank.
5. When draining is complete, close drain valve and retighten air vent.

Draining Inner (Domestic Water) Tank

(See Domestic Piping Fig. 4 page 9)

1. Disconnect power supply to water heater.
   - If outer (boiler water) tank pressure is greater than 15 psig, relieve boiler pressure and close isolation valves before proceeding.
2. Close system supply isolation valve.
3. Connect a hose to domestic water drain valve at cold water inlet. Hose should extend to drain at floor level to allow siphoning of domestic water tank.
4. Open hot water faucet at highest point above heater.
5. Open domestic water drain valve to start siphoning.
6. When draining is complete, close hot water faucet and domestic water drain valve.

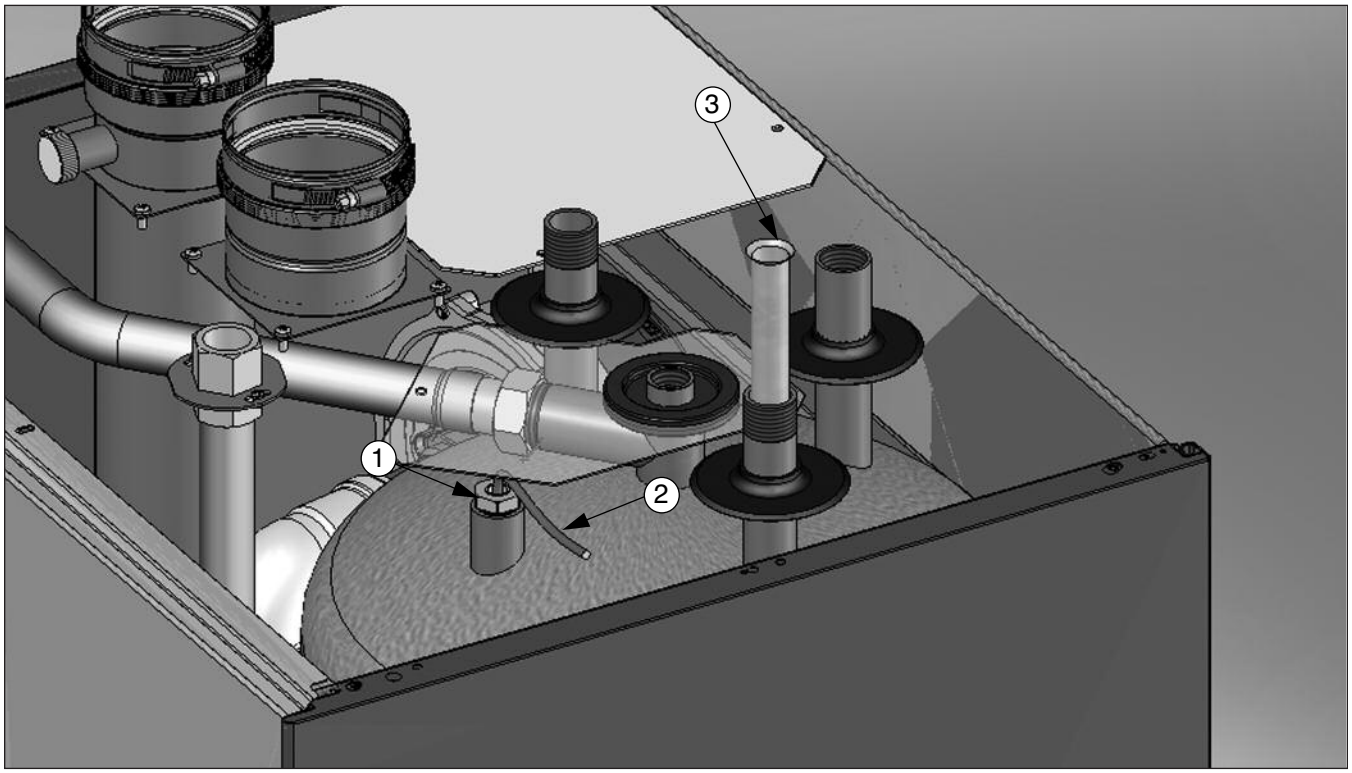
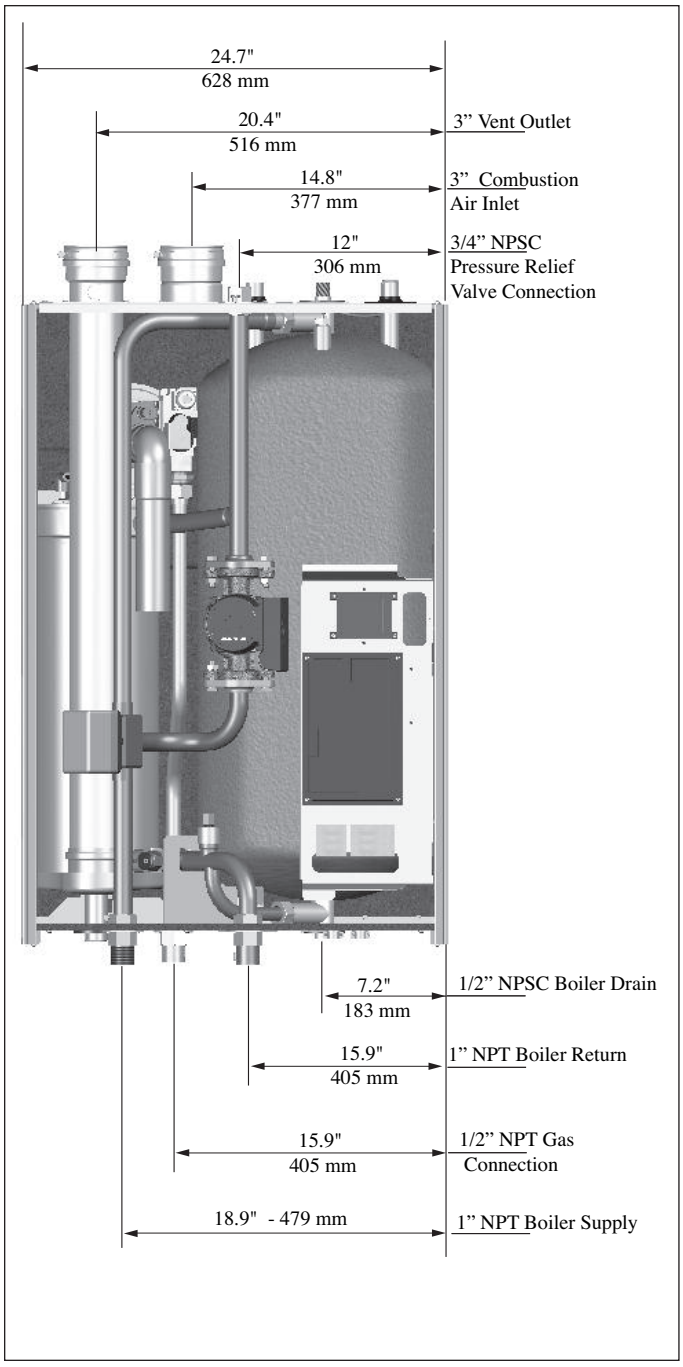
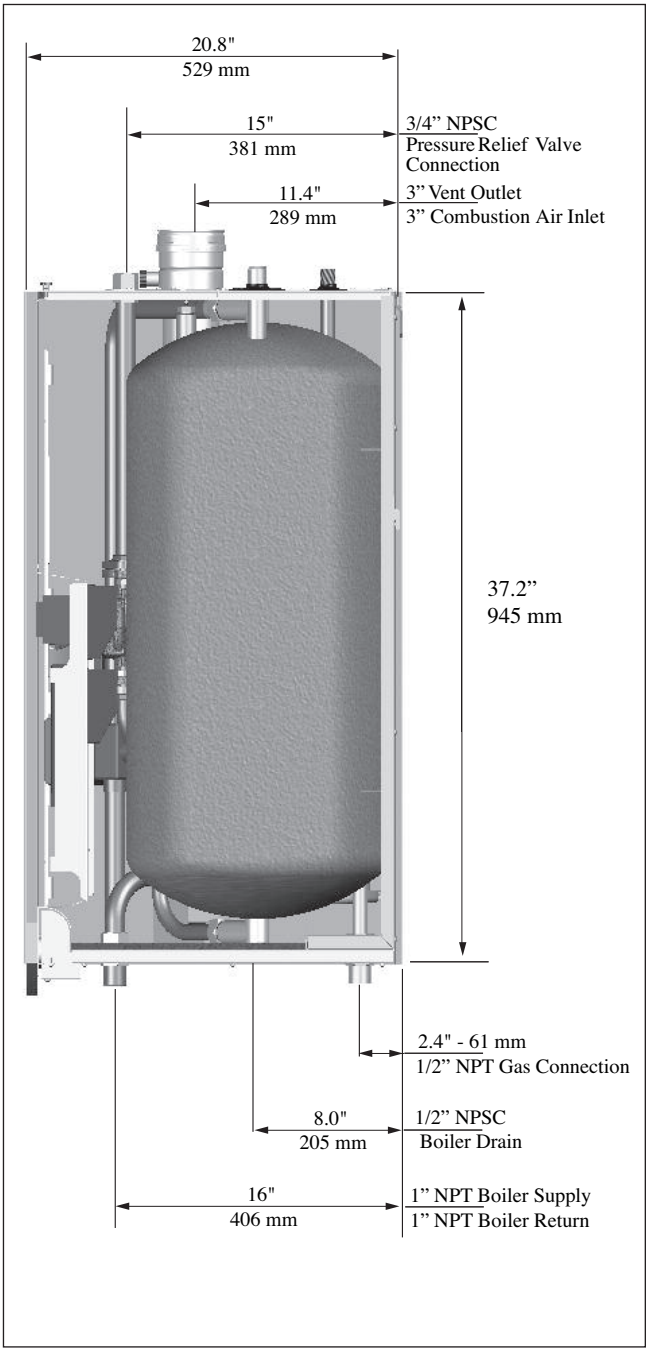


Fig. 7: Excellence Domestic Components

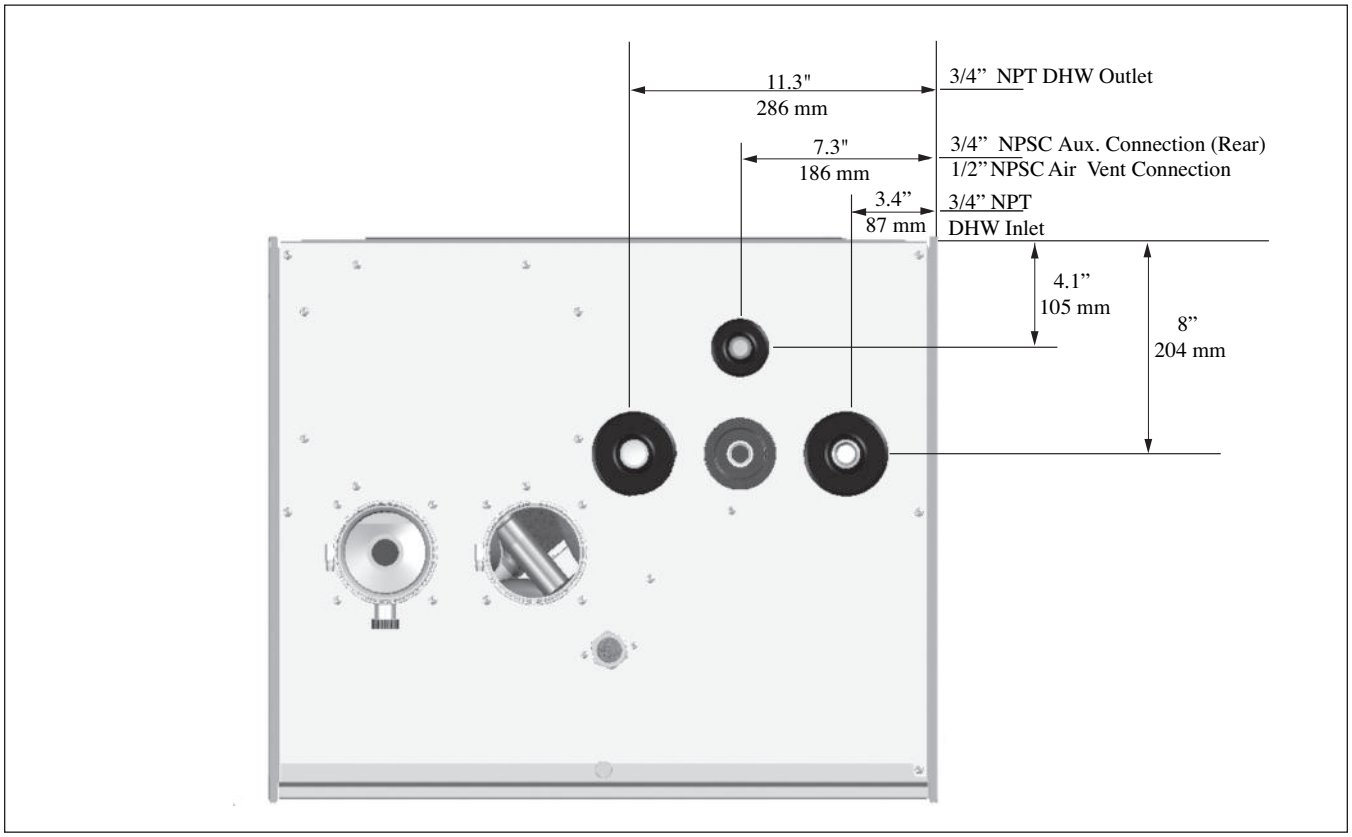
Part	Description	Part Number
1	Drywell	P3DW05
2	NTC 3 DHW Water	PSRKIT63
3	Dip Tube	P3WKITDT01



Front View



Side View



Top View

Performances

Model	Domestic Storage Volume Gal.	Peak Flow Gal./ 10 Min.	1st Hour Flow Gal./ Hour	Continuous Flow Gal./ Hour
Excellence 110	14	55	210	180
Conditons: 50°F Domestic Cold Water Inlet Temperature 120°F Domestic Hot Water Outlet Temperature When Factory Supplied Mixing Valve is Installed 186°F Boiler Water Supply Temperature				

Additional quality water heating equipment available from: **Triangle Tube**

Smart Indirect Fired Water Heaters

- Exclusive Tank-in-Tank design
- Stainless steel construction
- Available in 8 sizes and 2 models
- Limited LIFETIME residential warranty
- 15 year limited commercial warranty
- Self cleaning/self descaling design

TTP Brazed Plate Heat Exchangers

- For domestic water, snow melting, radiant floor, refrigeration
- Plates made of stainless steel, with a 99.9 % copper and brazed, ensuring a high resistance to corrosion
- Self cleaning and self descaling
- Computerized sizing available from Triangle Tube/Phase III
- Available in capacities from 25,000 BTU/hr to 5,000,000 BTU/hr
- UL Listed

Maxi-flo Pool and Spa Heat Exchangers

- Construction of high quality corrosion resistant stainless steel (AISI 316)
- Specially designed built-in flow restrictor to assure maximum heat exchange
- Compact and light weight
- Available in 5 sizes that can accommodate any size pool or spa

Freeway Center - 1 Triangle Lane - Blackwood, NJ 08012
(856) 228 8881 Fax (856) 228 3584
http:\\www.triangletube.com / info@triangletube.com.

Member of ACV Group